

REMARKS

The claims remaining in this patent application following amendment are claims 1, 3, 19 and 21-24. Claims 2 and 20 have been cancelled, without prejudice. Claims 1, 3, 19, 21 and 24 are amended. No claims have been added. Claims 1, 19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent to Pieroni et al (5,922,944). Claims 2, 3 and 20 are rejected under 35 U.S.C. 103 as being unpatentable over the aforementioned patent to Pieroni et al in view of the patents to Gouge (5,859,363) and Brayman et al (4,754,638). Inasmuch as claims 2 and 20 have been cancelled, the aforementioned rejection thereof is rendered moot. The rejection of claims 1, 3, 19 and 21 is respectfully traversed.

Independent claim 1 has been amended to recite an apparatus for generating smoke comprising a source of non-combustible nitrogen gas connected to a gas inlet so as to supply nitrogen gas under pressure to said gas inlet by which a mixture of nitrogen gas and a fluid is blown against a heating element so that the fluid can be vaporized into smoke. Independent claim 19, amended, recites a method for generating smoke including the step of blowing a mixture comprising a supply of non-combustible nitrogen gas and a fluid against a heating element at which the fluid is vaporized. No single patent or combination of patents which are currently of record herein teaches an apparatus or method which is the same or equivalent to the applicants' apparatus and method as recited in independent claims 1 and 19, respectfully. More particularly, no patent or combination of patent shows or suggests a mixture of non-combustible nitrogen gas

and a fluid (e.g. oil) being blown against a heating element so that the oil will be vaporized into smoke.

In this regard, the Examiner has pointed out that the patent to Brayman et al teaches the use of a trace gas concentration wherein the carrier gas can be nitrogen. However, it is important to understand that the non-combustible nitrogen gas claimed by the applicants is not employed as a trace gas. The nitrogen gas claimed by the applicants is used for the entirely different purpose of blowing a fluid towards a heating element at which the fluid is vaporized into smoke. Thus, the nitrogen gas plays no role as a trace and, therefore, there is no requirement for nitrogen gas detection in the applicants apparatus and method. What is even more, the applicants' earlier patent to Pieroni et al employed air as the gas for blowing oil towards the heating element. As will be understood by those skilled in the art, air contains oxygen and is highly combustible in a volatile environment. On the other hand, nitrogen gas is inert, contains no oxygen, and is therefore non-combustible. In fact, one would be expected to use a combustible mixture containing air to make smoke rather than a mixture containing inert, non-combustible nitrogen gas, like that claimed by the applicants. Thus, despite the use of nitrogen as a trace gas by Brayman et al, there is absolutely nothing in Pieroni et al, Gouge and Brayman et al, or any reasonable combination thereof, which would teach the improbable use of non-combustible nitrogen gas (i.e. a gas that does not burn) to blow a fluid (e.g. oil) against a heating element at which the fluid is vaporized into smoke in the manner recited by the applicants in independent claims 1 and 19, amended.

Stated in other words, the nitrogen gas to which reference is made by Brayman et al is limited entirely for use as a trace gas to be detected to determine the presence of a leak. In the applicants' claimed apparatus and method, nitrogen gas is used for the sole purpose of making smoke by blowing oil against a heating element. There is no reason why one would think or be motivated to substitute the non-combustible nitrogen trace gas described by Brayman et al for the altogether different purpose of making smoke in the highly combustible environment where the applicants' apparatus and method will be employed. Accordingly, each of independent 1 and 19 is believed to be distinguishable from the teachings of Pieroni et al in view of Gouge and Brayman et al. Inasmuch as independent claims 1 and 19 are believed to be patentable, dependent claims 3, and 21-24, which depend therefrom, are likewise believed to be patentable.

Claims 22 is rejected under 35 U.S.C. 103 as being unpatentable over the aforementioned patent to Pieroni et al in view of the patent to Malcosky et al (4,773,255). Claim 22 is dependent from claim 19, amended. Inasmuch as independent claim 19 is believed to be patentable, claim 22 is likewise believed to be patentable.

Claim 23 is rejected under 35 U.S.C. 103 as being unpatentable over the aforementioned patent to Pieroni et al as modified by the aforementioned patent to Malcosky et al in further view of the patent to Seelbach (3,887,716). This rejection is traversed. Claim 23 (which depends from claim 22) recites the steps of generating smoke, discharging smoke to the atmosphere in the event that excess pressure is detected within a smoke outlet, and condensing the discharged smoke back into droplets of fluid (i.e. oil) to be collected in a pressure discharge accumulator. There is absolutely no suggestion whatsoever Malcosky et al to trap and condense hexafluoride in the

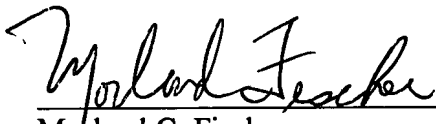
event that said gas is discharged through the relief valves described by Malcosky et al. In fact, there would be no reason to even consider trapping and condensing the hexafluoride emitted from the relief valves of Malcosky et al since this gas is not being converted from a gas to a liquid to avoid its escape to the atmosphere as is otherwise disclosed and claimed by the applicants. Thus, regardless of the teachings of Seelbach, there is nothing in the proposed combination of Malcosky et al and Seelbach that would motivate, encourage or teach one of ordinary skill to modify Pieroni et al so as to trap and condense smoke that is bled from a pressure relief valve to the atmosphere so as to convert said smoke back to a liquid (oil) in the manner recited in claim 23. Accordingly, it is submitted that claim 23 is patentable in and of itself over any reasonable combination of Pieroni et al in view of Malcosky et al and in further view of Seelbach.

Claim 24 is rejected under 35 U.S.C. 103 as being unpatentable over the aforementioned patent to Pieroni et al in view of the patent to Ireland et al (6,181,874). This rejection is also traversed. Claim 24 has been amended to improve the accuracy thereof with regard to the invention disclosed by the applicants. Claim 24, amended, recites the steps of monitoring the (back) pressure within the nitrogen gas inlet and controlling the energization of a remote heating element for heating a totally independent supply of fluid depending upon the pressure within the gas inlet. There is absolutely no suggestion whatsoever in the principal reference (Pieroni et al) to measure the pressure within a gas inlet to a fluid supply for any purpose. In Ireland et al, current through a heater mesh is dependent upon a fluid passing through the heater mesh, itself. It is extremely doubtful that one would apply the teachings of Ireland to make a substantial modification to the teachings of Pieroni et al when there is no motivation, encouragement or teaching to make such modification. In this regard, it must be remembered that the nitrogen gas

inlet claimed by the applicant is spaced from and independent of the heating element, and the heating element is spaced from and independent of the fluid to be heated. While Ireland merely describes a means to interrupt current to a heater in the event of blockage through the heater, the Examiner has not in any way explained how one of ordinary skill could apply this innocuous teaching to Pieroni et al with absolutely no suggestion in Pieroni et al to make the combination proposed by the Examiner in the Office Action. Accordingly, it is submitted that claim 24, amended, is patentable in and of itself over any reasonable combination of Pieroni et al in view of Ireland et al.

In view of the foregoing, each of claims 1, 3, 19 and 21-24, which remains in this patent application, is believed to be patentable. Accordingly, reconsideration of the Examiner's rejection is requested and a Notice of Allowance is earnestly solicited.

Respectfully submitted,



Morland C. Fischer
Attorney for the Applicants
2030 Main Street, Suite 1050
Irvine, California 92614
Telephone (949) 476-0600
Facsimile (949) 476-0606

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Christine Channessian
Christine Channessian

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